

Sequence Listing.ST25  
SEQUENCE LISTING

<110> BENSON, Timothy  
PRINCE, Donald Bryan

<120> CRYSTALLIZATION AND STRUCTURE DETERMINATION OF FEMA AND FEMA-LIKE PROTEINS

<130> 00236.US1

<140> Unassigned

<141> 2001-08-17

<150> US 60/226,239

<151> 2000-08-17

<150> US 60/226,269

<151> 2000-08-17

<160> 3

<170> PatentIn version 3.0

<210> 1

<211> 414

<212> PRT

<213> Staphylococcus aureus

<400> 1

Met	Lys	Phe	Ser	Thr	Leu	Ser	Glu	Glu	Glu	Phe	Thr	Asn	Tyr	Thr	Lys
1				5					10					15	

Lys	His	Phe	Lys	His	Tyr	Thr	Gln	Ser	Ile	Glu	Leu	Tyr	Asn	Tyr	Arg
			20					25					30		

Asn	Lys	Ile	Asn	His	Glu	Ala	His	Ile	Val	Gly	Val	Lys	Asn	Asp	Lys
		35					40					45			

Asn	Glu	Val	Ile	Ala	Ala	Cys	Leu	Leu	Thr	Glu	Ala	Arg	Ile	Phe	Lys
	50					55					60				

Phe	Tyr	Lys	Tyr	Phe	Tyr	Ser	His	Arg	Gly	Pro	Leu	Leu	Asp	Tyr	Phe
65					70					75					80

Asp	Ala	Lys	Leu	Val	Cys	Tyr	Phe	Phe	Lys	Glu	Leu	Ser	Lys	Phe	Ile
			85						90					95	

Tyr	Lys	Asn	Arg	Gly	Val	Phe	Ile	Leu	Val	Asp	Pro	Tyr	Leu	Ile	Glu
			100					105					110		

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Asn	Leu	Arg	Asp	Ala	Asn	Gly	Arg	Ile	Ile	Lys	Asn	Tyr	Asn	Asn	Ser	115	120	125
Val	Ile	Val	Lys	Met	Leu	Gly	Lys	Ile	Gly	Tyr	Leu	His	Gln	Gly	Tyr	130	135	140
Thr	Thr	Gly	Tyr	Ser	Asn	Lys	Ser	Gln	Ile	Arg	Trp	Ile	Ser	Val	Leu	145	150	155
Asp	Leu	Lys	Asp	Lys	Asp	Glu	Asn	Gln	Leu	Leu	Lys	Glu	Met	Glu	Tyr	165	170	175
Gln	Thr	Arg	Arg	Asn	Ile	Lys	Lys	Thr	Ile	Glu	Ile	Gly	Val	Lys	Val	180	185	190
Glu	Asp	Leu	Ser	Ile	Glu	Glu	Thr	Asn	Arg	Phe	Tyr	Lys	Leu	Phe	Gln	195	200	205
Met	Ala	Glu	Glu	Lys	His	Gly	Phe	His	Phe	Met	Asn	Glu	Asp	Tyr	Phe	210	215	220
Lys	Arg	Met	Gln	Glu	Ile	Tyr	Lys	Asp	Lys	Ala	Met	Leu	Lys	Ile	Ala	225	230	235
Cys	Ile	Asn	Leu	Asn	Glu	Tyr	Gln	Asp	Lys	Leu	Lys	Ile	Gln	Leu	Leu	245	250	255
Lys	Ile	Glu	Asn	Glu	Met	Met	Thr	Val	Asn	Arg	Ala	Leu	Asn	Glu	Asn	260	265	270
Pro	Asn	Ser	Lys	Arg	Asn	Lys	Ser	Lys	Leu	Asn	Gln	Leu	Asn	Met	Gln	275	280	285
Leu	Ser	Ser	Ile	Asn	Asn	Arg	Ile	Ser	Lys	Thr	Glu	Glu	Leu	Ile	Leu	290	295	300
Glu	Asp	Gly	Pro	Val	Leu	Asp	Leu	Ala	Ala	Ala	Leu	Phe	Ile	Cys	Thr	305	310	315
Asp	Asp	Glu	Val	Tyr	Tyr	Leu	Ser	Ser	Gly	Ser	Asn	Pro	Lys	Tyr	Asn	325	330	335
Gln	Tyr	Met	Gly	Ala	Tyr	His	Leu	Gln	Trp	His	Met	Ile	Lys	Tyr	Ala	340	345	350
Lys	Ser	His	Asn	Ile	Asn	Arg	Tyr	Asn	Phe	Tyr	Gly	Ile	Thr	Gly	Val	355	360	365
Phe	Ser	Asn	Glu	Ala	Asp	Asp	Phe	Gly	Val	Gln	Gln	Phe	Lys	Lys	Gly	370	375	380

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Phe Asn Ala His Val Glu Glu Leu Ile Gly Asp Phe Ile Lys Pro Val  
385 390 395 400

Arg Pro Ile Leu Tyr Lys Phe Ala Lys Leu Ile Tyr Lys Val  
405 410

<210> 2  
<211> 419  
<212> PRT  
<213> Staphylococcus aureus

<400> 2

Met Lys Phe Thr Glu Leu Thr Val Thr Glu Phe Asp Asn Phe Val Gln  
1 5 10 15

Asn Pro Ser Leu Glu Ser His Tyr Phe Gln Val Lys Glu Asn Ile Val  
20 25 30

Thr Arg Glu Asn Asp Gly Phe Glu Val Val Leu Leu Gly Ile Lys Asp  
35 40 45

Asp Asn Asn Lys Val Ile Ala Ala Ser Leu Phe Ser Lys Ile Pro Thr  
50 55 60

Met Gly Ser Tyr Val Tyr Tyr Ser Asn Arg Gly Pro Val Met Asp Phe  
65 70 75 80

Ser Asp Leu Gly Leu Val Asp Tyr Tyr Leu Lys Glu Leu Asp Lys Tyr  
85 90 95

Leu Gln Gln His Gln Cys Leu Tyr Val Lys Leu Asp Pro Tyr Trp Leu  
100 105 110

Tyr His Leu Tyr Asp Lys Asp Ile Val Pro Phe Glu Gly Arg Glu Lys  
115 120 125

Asn Asp Ala Leu Val Asn Leu Phe Lys Ser His Gly Tyr Glu His His  
130 135 140

Gly Phe Thr Thr Glu Tyr Asp Thr Ser Ser Gln Val Arg Trp Met Gly  
145 150 155 160

Val Leu Asn Leu Glu Gly Lys Thr Pro Glu Thr Leu Lys Lys Thr Phe  
165 170 175

Asp Ser Gln Arg Lys Arg Asn Ile Asn Lys Ala Ile Asn Tyr Gly Val  
180 185 190

Lys Val Arg Phe Leu Glu Arg Asp Glu Phe Asn Leu Phe Leu Asp Leu  
195 200 205

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Tyr Arg Glu Thr Glu Glu Arg Ala Gly Phe Val Ser Lys Thr Asp Asp  
210 215 220

Tyr Phe Tyr Asn Phe Ile Asp Thr Tyr Gly Asp Lys Val Leu Val Pro  
225 230 235 240

Leu Ala Tyr Ile Asp Leu Asp Glu Tyr Val Leu Lys Leu Gln Gln Glu  
245 250 255

Leu Asn Asp Lys Glu Asn Arg Arg Asp Gln Met Met Ala Lys Glu Asn  
260 265 270

Lys Ser Asp Lys Gln Met Lys Lys Ile Ala Glu Leu Asp Lys Gln Ile  
275 280 285

Asp His Asp Gln His Glu Leu Leu Asn Ala Ser Glu Leu Ser Lys Thr  
290 295 300

Asp Gly Pro Ile Leu Asn Leu Ala Ser Gly Val Tyr Phe Ala Asn Ala  
305 310 315 320

Tyr Glu Val Asn Tyr Phe Ser Gly Gly Ser Ser Glu Lys Tyr Asn Gln  
325 330 335

Phe Met Gly Pro Tyr Met Met His Trp Phe Met Ile Asn Tyr Cys Phe  
340 345 350

Asp Asn Gly Tyr Asp Arg Tyr Asn Phe Tyr Gly Leu Ser Gly Asp Phe  
355 360 365

Thr Glu Asn Ser Glu Asp Tyr Gly Val Tyr Arg Phe Lys Arg Gly Phe  
370 375 380

Asn Val Gln Ile Glu Glu Leu Ile Gly Asp Phe Tyr Lys Pro Ile His  
385 390 395 400

Lys Val Lys Tyr Trp Leu Phe Thr Thr Leu Asp Lys Leu Arg Lys Lys  
405 410 415

Leu Lys Lys

<210> 3  
<211> 421  
<212> PRT  
<213> Staphylococcus aureus

<400> 3

Met Glu Lys Met His Ile Thr Asn Gln Glu His Asp Ala Phe Val Lys

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1	5	10	15
Ser His Pro Asn Gly Asp Leu Leu Gln Leu Thr Lys Trp Ala Glu Thr	20	25	30
Lys Lys Leu Thr Gly Trp Tyr Ala Arg Arg Ile Ala Val Gly Arg Asp	35	40	45
Gly Glu Val Gln Gly Val Ala Gln Leu Leu Phe Lys Lys Val Pro Lys	50	55	60
Leu Pro Tyr Thr Leu Cys Tyr Ile Ser Arg Gly Phe Val Val Asp Tyr	65	70	75
Ser Asn Lys Glu Ala Leu Asn Ala Leu Leu Asp Ser Ala Lys Glu Ile	85	90	95
Ala Lys Ala Glu Lys Ala Tyr Ala Ile Lys Ile Asp Pro Asp Val Glu	100	105	110
Val Asp Lys Gly Thr Asp Ala Leu Gln Asn Leu Lys Ala Leu Gly Phe	115	120	125
Lys His Lys Gly Phe Lys Glu Gly Leu Ser Lys Asp Tyr Ile Gln Pro	130	135	140
Arg Met Thr Met Ile Thr Pro Ile Asp Lys Asn Asp Asp Glu Leu Leu	145	150	155
Asn Ser Phe Glu Arg Arg Asn Arg Ser Lys Val Arg Leu Ala Leu Lys	165	170	175
Arg Gly Thr Thr Val Glu Arg Ser Asp Arg Glu Gly Leu Lys Thr Phe	180	185	190
Ala Glu Leu Met Lys Ile Thr Gly Glu Arg Asp Gly Phe Leu Thr Arg	195	200	205
Asp Ile Ser Tyr Phe Glu Asn Ile Tyr Asp Ala Leu His Glu Asp Gly	210	215	220
Asp Ala Glu Leu Phe Leu Val Lys Leu Asp Pro Lys Glu Asn Ile Ala	225	230	235
Lys Val Asn Gln Glu Leu Asn Glu Leu His Ala Glu Ile Ala Lys Trp	245	250	255
Gln Gln Lys Met Glu Thr Ser Glu Lys Gln Ala Lys Lys Ala Gln Asn	260	265	270
Met Ile Asn Asp Ala Gln Asn Lys Ile Ala Lys Asn Glu Asp Leu Lys			

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280

285

Arg	Asp	Leu	Glu	Ala	Leu	Glu	Lys	Glu	His	Pro	Glu	Gly	Ile	Tyr	Leu
290						295					300				
Ser	Gly	Ala	Leu	Leu	Met	Phe	Ala	Gly	Ser	Lys	Ser	Tyr	Tyr	Leu	Tyr
305					310					315					320
Gly	Ala	Ser	Ser	Asn	Glu	Phe	Arg	Asp	Phe	Leu	Pro	Asn	His	His	Met
				325					330					335	
Gln	Tyr	Thr	Met	Met	Lys	Tyr	Ala	Arg	Glu	His	Gly	Ala	Thr	Thr	Tyr
			340					345					350		
Asp	Phe	Gly	Gly	Thr	Asp	Asn	Asp	Pro	Asp	Lys	Asp	Ser	Glu	His	Tyr
		355					360					365			
Gly	Leu	Trp	Ala	Phe	Lys	Lys	Val	Trp	Gly	Thr	Tyr	Leu	Ser	Glu	Lys
		370				375					380				
Ile	Gly	Glu	Phe	Asp	Tyr	Ile	Leu	Asn	Gln	Pro	Leu	Tyr	Gln	Leu	Ile
385					390					395					400
Glu	Gln	Val	Lys	Pro	Arg	Leu	Thr	Lys	Ala	Lys	Ile	Lys	Ile	Ser	Arg
				405					410					415	
Lys	Leu	Lys	Arg	Lys											
			420												